ECON3500: Econometrics and Applications

In-Class Activity: Inference

1. Suppose that a research, using data on class sizes and average test scores from 100 third-grade classes, estimates the following OLS regression:

$$\widehat{TestScore} = 520.4 - 5.82CS$$

where the $SE(\hat{\beta}_0) = 20.4$, $SE(\hat{\beta}_1) = 2.21$, $R^2 = 0.08$, and $SER = 11.5$

   (a) Construct a 95% confidence interval for β_1

   (b) Calculate the p-value for the two-sided test of the null hypothesis $H_0 : \beta_1 = 0$. Do you reject the null at the 5% level? The 1% level?

   (c) Consider the two-sided test $H_0 : \beta_1 = -5.6$. Without doing any calculations, determine whether –5.6 is included in the 95% CI for β_1.

   (d) Construct a 99% confidence interval for β_0. What does it mean?